



The Moon-Race Cover - up

John Kennedy's decision in 1961 to gamble America's prestige on getting to the moon ahead of the Russians was not widely opposed at first, when the psychic wounds of the early Soviet space spectaculars were still smarting. But as the 1960s went on, the budget of the moon race mounted and the manifold costs of Vietnam began to hurt. Soon John Kennedy and Camelot were gone.

And by the middle of the decade a string of Gemini manned flights, Surveyor robot moon landings, Orbiter moon mappers and Mariner planetary probes had helped assuage the wounded pride of Washington politicians. Doubts arose about the wisdom of a precipitous man-to-the-moon race.

Suppose it had all been a trick? Those sly Russians, suggested right-wing politicians, were trying to snooker us into a side show on the moon while they forged ahead and seized control of strategic orbital regions much closer to earth. The Russians, suggested left-wing politicians, were too clever to waste money on an empty "moon-doggle" stunt; but even if they were, the American people had desperate social needs from which funds had been diverted for cosmic flag-waving. The Russians, suggested much of the scientific community, were developing a rational unmanned deep-space exploration program without the costs or risks of sensational manned space flights, and we should do the same.

Later, in the aftermath of Apollo-11's successful landing, when the histories of the space race were written, it became "obvious" that these suspicions had been correct. The Soviets, after all, never did send men to the moon, and the official Soviet spokesmen later confirmed that they never had intended

to. (If they had, of course, they would have won -- that was the implication.) Admittedly, the Apollo program was exciting and inspirational, but the verdict of the 1970s seemed to be that it was not relevant to its original purpose, which had been to demonstrate the superiority of American science and technology over Soviet science and technology.

This question -- Did the Soviet Union ever really want or try to send men to the moon? -- is probably the knottiest problem in a quarter century of space history. The answer I have come to (and it is shared by most specialists in the field, but apparently not by the authors of the popular books on the subject or by the news media) is that, yes, the Soviets did indeed have a very ambitious man-to-the-moon program, which came very close to upstaging Apollo's lunar circumnavigation late in 1968. Further, I think the evidence now available also strongly suggests that, yes, in fact the Soviets were serious about landing their cosmonauts on the moon in the early 1970s.

This contrasts with the present-day official Soviet position: the Soviet Union never meant to send men to the moon because it would have been too risky, too wasteful and not nearly as productive as robot probes. This superficially attractive assertion is probably the biggest about-face of the space age, although we have seen that such propaganda is completely in character. Further, this disclaimer was remarkably successful in convincing even Western observers, and this resulted in the effective neutralization of the political implications of the Apollo project.

It's not hard to document the widespread acceptance of the Soviet assertion that they had never bothered with the moon race. Walter Cronkite, during an Apollo-11 fifth-anniversary memorial TV news special report in 1974, reviewed the history of the 1960s and intoned: "It turned out that the Russians were never in the race at all." (Cronkite's researchers had actually reported that there was considerable controversy over this issue and that the best-informed specialists in Washington, D.C., thought the Russians had been in the race -- but that was not the way the script wound up.) Such confidence was probably based on a brief perusal of popular books on the moon landing. A typical one was *Journey to Tranquillity* (Doubleday, 1969), whose book-jacket blurb proclaimed the self-styled "startling

fact” that “the struggle to get an American on the Moon by 1970 thrived on an overwhelming fear of Russian space superiority, a fear which NASA still fosters as a challenge to American security and prestige. But by 1963 it had become clear that the Russians had little immediate interest in the Moon and that the race for space did not, in fact, exist.”

Post Apollo revelations by defecting Soviet science journalist Leonid Vladimirov supported this attitude. Discussing Vladimirov’s report, the London *Sunday Times* wrote in 1971: “It became obvious long before the Americans landed on the Moon that they were winning the space race hands down... There was never the remotest chance that the Russians would get to the Moon first.” London’s *Guardian* quoted the defector as saying that “Russia knew a long time ago that she cannot build a moon rocket,” but the *Guardian* went even further by stating that “this is an argument which tilts at a shadow, for five years ago, some Western observers were arguing that the ‘Moon race’ was a myth.... This has turned out to be the case.”

Revelations from American experts connected with the 1975 U.S.A.-U.S.S.R. joint Apollo-Soyuz project also provided supportive evidence. Howard Benedict, the Associated Press aerospace writer, filed a story from Washington in June 1974 that began: “During the 1960s, the United States conducted a crash program to beat the Russians in putting a man on the Moon. Now American space officials have evidence that the Soviets never were in the race . . . “ The Soviet manned ship, the Soyuz, “could not make a lunar trip,” Benedict asserted, quoting an unnamed NASA official.

What, then, is the hard evidence that can stand against such remarkable public unanimity? The evidence divides into two classes: first is the proof that the Soviets were serious about sending men out to the moon on simple “fly-by” circumnavigations, with quick returns to earth; second is the evidence that suggests strongly that their lunar ambitions included the same ultimate prize as did the American Apollo program, the actual manned lunar landing itself. In both of these goals, the Soviets expected -- indeed, planned, as the very justification of the project -- to beat the Americans. Analysis of the evidence, which consists of actual unmanned and manned space tests, of photographs, of public and private statements by

Soviet space officials and of leaks from Western military intelligence agencies, has revealed a consistent and persuasive picture of a massive Soviet effort to upstage the Apollo lunar missions.

The Soviet manned lunar circumnavigation plans are easy to document. The actual moon ship for the first lunar mission can be identified. In hindsight the often strident moon-race warnings in the late 1960s were absolutely correct: the race to send men to the moon was neck-and-neck up until the last moment.

In 1968 -- 1970 the Russians sent four unmanned space capsules around the moon and back to earth. Called Zond probes these vehicles were, in hindsight, merely modified Soyuz spaceships, launched without the front "orbital module" and with more powerful heat shields, radio systems and heat-control systems. They were entirely capable of carrying at least one pilot out to the moon and back to earth -- and Soviet statements strongly indicated that such flights were planned.

This Zond program is compatible with a picture of a serious and significant Soviet man-around-the-moon program. Such an effort was in accord with their main space-program philosophy of the 1960s: beat the Americans to all major space targets even if the technology to be used is not nearly as sophisticated. The Soviets seemed to want to maintain the public image of their space superiority, while leaving the real science and engineering research to the United States.

The first test launchings in the Soyuz-Zond lunar program had been made in early 1967. With luck (or with the presence of Korolev's firm hand), a three- or four-flight program might have led up to a manned lunar circumnavigation just prior to the November 7 celebration of the fiftieth anniversary of the Bolshevik seizure of power in Russia. Plans for such a space spectacular were widely rumored in Moscow and Washington at the time, and would obviously have had great appeal to the Soviet government-but it was not to be.

The first two launch attempts, in March and April 1967, apparently failed in their purposes of rocketing out to and around the moon. Instead, both probes fell far short of the moon and soon slipped back into the atmosphere, where they burned up. The failures were probably attributable to problems with the

new upper stage for the Proton rocket; these problems would continue off and on for another four years as one would-be moon probe after another tumbled back from the edge of space at an altitude of barely one hundred miles.

Further launchings planned in 1967 were probably hindered by the diversion of manpower to the investigation and repair of the Soyuz-1 disaster in April (when cosmonaut Komarov died), and a third lunar attempt was not made until late November. This time it was the first stage of the powerful Proton booster which broke down, sending the rest of the vehicle tumbling back onto the icy steppes of Kazskhstan barely five minutes after blast-off.

The first successful launching came the following April, when Zond-4 headed off on a deep-space trajectory. It was headed directly away from the moon, but that course had evidently been chosen to simplify navigation for the probe. Something else may have gone wrong, since the planned recovery of the capsule after its six-day space flight was evidently not successful. A new launch the following month ended in another debacle when the still balky Proton booster rocket exploded shortly after takeoff.

By now it was mid-1968, and more than a year had passed since the Apollo and Soyuz tragedies. The moon race had resumed its forward momentum. In August NASA announced plans to “consider” sending the manned Apollo-8 around the moon in December if the October earth-orbital test flight of Apollo-7 (the first manned flight) went perfectly. It was a daring plan, and it depended on a lot of things going right if the mission was to succeed (or even if the men were to survive). The Soviets may not have felt it was likely to occur quite so soon, but they did take notice that an American man-to-the-moon flight might be less than a year away.

In the light of this new urgency, and with more than two years to work out the management problems following Korolev’s death, Soviet space officials committed themselves to their own bold plan: they would make two more unmanned test flights, which, if successful, would be followed by a cosmonaut’s lunar fly-by. The first probe, Zond-5, was launched successfully on September 15, and six days later it had made a safe splashdown in the Indian Ocean after

circumnavigating the moon. It was a major technological achievement in its own right, but it promised to be followed by even more stunning flights.

The unmanned Zond-6 went up in November and made a similarly successful fly-by of the moon. However, this time it did not splash down in the Indian Ocean but instead made a highly sophisticated “double-dip” return, skipping off the upper atmosphere over the Southern Hemisphere and then plopping down gently right inside the standard Soviet space recovery zone in central Asia. The way was clear for a Soviet manned flight to the moon; the next lunar launch window for a simple fly-by was December 9. Meanwhile, since Apollo-7 had also been a complete success, NASA decided to push for its own manned lunar orbit -- but because of differences in trajectories, the Apollo window would not open until December 20.

December 9 came and went, and nothing happened. There was no Soviet launch. The world’s attention returned to Cape Kennedy, where Apollo-8 was in its final stages of preparation. On December 21, 1968, it blasted off atop a giant Saturn-5 booster. The three astronauts were circling the moon by Christmas Eve, where they were entertained by a poem from Mission Control, which started, “‘Twas the night before Christmas, and way out in space, the Apollo Eight crew had just won the moon ... “And they really had -- but even they didn’t know how close it had been.

The Soviets sent the obligatory congratulations on the success of the circumlunar expedition. But they insisted that the American flight had not been a victory in any U.S.- U.S.S.R. moon race, because there never had been any such race.

However, prior to the success of Apollo-8, the Soviets had explicitly asserted just the opposite about their intentions. The *Soviet Encyclopedia of Space Flight*, published in late 1968, unequivocally stated that the Zond flights “were launched for flight testing and further development of an automatic version of a manned lunar spaceship.” Cosmonaut Vladimir Komarov, before his death in 1967, had told newsmen that “I can positively state that the Soviet Union will not be beaten by the United States in the race for a human being to go to the moon... The U.S. has a timetable for 1969 plus ‘X’ but our timetable is 1969 plus ‘X’ minus one” (that is, a year before the Americans,

no matter when they landed). Cosmonaut Gherman Titov had written: "As for myself, I dream of flying around the moon... Cosmonauts have a good chance of getting a close view of the moon." Aleksy Leonov had stated that "man will visit the moon in the nearest future. I dream of this being accomplished by men of our detachment. If I am very lucky, I will get the assignment."

Although it's possible to think of such statements as merely propaganda boasts, they were more than that. Soviet cosmonauts rarely ad-libbed in public: if they didn't have an approved script which reflected official policy, they remained silent.

But even more convincing is an account from Apollo-11 astronaut Michael Collins concerning a private, off-the-record meeting he and fellow-astronaut David Scott had with cosmonaut Pavel Belyayev at an air show in Paris in early 1968. The men were discussing their own future flight plans, and Collins later noted that "we found that Belyayev himself expected to make a circumlunar flight in the not too distant future." Since Belyayev's statements had not been made for public consumption, the astronauts felt that he had been telling the truth.

Nikita Khrushchev also referred to the man-to-the-moon program (which would have been just the kind of space shot he would have demanded) in his own memoirs when he paid homage to Sergey Korolev. "I'm only sorry," Khrushchev recalled, "that we didn't manage to send a man to the moon during Korolev's lifetime." Korolev's premature death, as we have seen, may have been the single most important contributing factor which prevented this cosmonaut lunar flight from occurring.

Aside from such authoritative personal testimony, additional evidence from the unmanned Zond vehicles themselves confirms that they were built to carry pilots. Drawings published in the early 1970s show that the Zond was identical in shape to a stripped-down Soyuz manned spacecraft; photographs of the crated Zond-5 command module being transferred off a Soviet recovery ship in Bombay harbor in 1968 show that the shipping canister is equal in size to the canister used to send a Soyuz command module to the National

Air and Space Museum in 1976. Furthermore, on manned Soyuz orbital flights, most of the air supplies are packed in the forward (“orbital”) module, but six man-days’ worth are installed in the command module -- which is precisely enough to get one pilot out to the moon and back alive, relying solely on the command module’s oxygen supplies. (The Zond had no orbital module, to save weight.) The distinctive and sophisticated “double-dip” reentry trajectory used by the Zond was obviously designed to lighten the G loads for the sake of frail human passengers, since later unmanned Soviet capsules bringing soil samples from the moon followed less complex routes which subjected them to hundreds of Gs during reentry into earth’s atmosphere. A photograph released by the Soviets in 1973 was immediately recognized by Soviet space expert Charles Vick as showing a Zond spacecraft being tested with a launch escape system -- an extra piece of gear the use of which has always been reserved only for manned space vehicles.

It seems certain beyond a reasonable doubt that the Soviets were, until late 1968, trying very hard to beat America to the moon, at least with regard to a manned circumlunar flight. Unfortunately, we still do not know why they did not launch in December, the last date available for several months because of complex constraints in orbital navigation. There were hints in Moscow that the booster had been ready and that the pilot, presumably Belyayev, had been at the space center awaiting final approval for blast-off. Whether the approval never came, based on a computation of risks, or whether the approval did come but the space vehicle broke down during the final countdown is still unknown. All we do know is that a year later Belyayev was dead, succumbing to an operation for peritonitis brought on by “a severe bleeding ulcer”; he was the first cosmonaut *not* to be buried in the Kremlin Wall, but was given a minor funeral and interred in Novodevichy Cemetery, not far from where Khrushchev would be buried one year later.

Leaving aside the mystery of why Belyayev’s moon flight had not been launched two weeks ahead of Apollo-8, a bigger question is why the Soviets never went on later to send manned Zond ships around the moon. They had spent all the budget money and had nearly completed the test program successfully.

Why should they now leave the moon entirely to American astronauts?

Considering the patterns of space-mission planning exhibited by the Soviet Union throughout the 1960s, the answer to that question should by now be obvious. The entire purpose of the Zond program had been to beat the Americans to the moon: that could have been the only value of the feat. When Apollo-8 circled the moon in December 1968, it should have become clear that the Soviets would never consider coming in a poor second in a race they had promised they would win. It was better to drop out in silence and to claim they never had been in the race so then they could appear not to have lost. The billions of rubles and hundreds of thousands of man-hours spent on the Zond gamble were a total loss and were wiped from the slate of history.

But there was still another possibility in the spring of 1969. Although the man-to-the-moon race was over, a man-on-the-moon race was probably still on. In a top-level Kremlin policy study made early in 1969 Russian experts concluded that an American moon landing was out of the question before mid-1970 at the earliest and was unlikely until well into 1972 because of continuing technical problems with the Saturn-5 rocket and with the lunar module that was intended to make the actual touchdown on the moon. In the meantime, any repetition of the astronaut deaths in the Apollo-1 tragedy might be expected to give the new Nixon administration an excuse to scuttle the lunar landing project (Nixon allegedly saw the whole project as contributing to the posthumous glory of his arch-rival John Kennedy, anyway) and turn the space program over to the Air Force generals and their “Manned Orbiting Laboratory” space-station project. So Moscow continued work on its manned lunar landing effort.

The existence of a Soviet man-on-the-moon program is still problematical even with years of hindsight; but there is good circumstantial evidence to suggest that it was a reality. This evidence consists of actual hardware, of strange Soviet space tests and of additional human testimony. The biggest piece of relevant evidence is the Soviet “super booster,” also called (without affection) “Webb’s giant” because NASA administrator James Webb continually referred

to it during NASA budget hearings on Capitol Hill in the late 1960s. The monster rocket, allegedly almost four hundred feet tall, was supposed to be twice the size of the American Saturn-5 but, because it used less efficient propellants, reportedly had a payload slightly smaller than that of the American moon-ship. There were many reports of its existence throughout the late 1960s, although skeptics saw it as just another NASA budget ploy. Eventually, when it never actually appeared on space missions, some experts suggested that it had repeatedly failed in flight -- while others saw this absence as proof it had never existed.

But the vehicle was real. In 1976 a CIA briefing official for the first time publicly confirmed that the Soviets had such a vehicle. Three of them were built: the first was destroyed in a fueling accident in June 1969 (possibly involving casualties among rocket engineers working at the pad) and two others disintegrated early in flight in June 1971 and November 1972. Afterward, the launch pads were mothballed and the project was written off as a bad try.

What purpose could such a vehicle serve? It had no military significance. It had no application to earth-orbiting space stations, since more than ten years have now elapsed and the Soviets are still working out the potentials of their medium-size Proton booster. There remains only one conceivable use for the super booster: manned flight to and landing on the moon.

An additional piece of space hardware would have been needed for such a flight to the lunar surface: a lunar module, or at least a lunar descent stage (if the entire command module was to have been landed). In the American program, this type of hardware was tested in earth orbit, first on us-manned flights in 1968 and then during a manned trial run in early 1969 (the Apollo-9 mission). The Soviets followed, a pattern with intriguing similarities: after one reported launch failure in late 1969, they put a heavy payload in orbit late in 1970 which exhibited characteristic man-related telemetry signals and which then proceeded to go through a series of orbital course changes. These maneuvers duplicated in many respects a lunar landing and subsequent ascent. Additionally, three other unmanned orbital space tests in 1970-1971 also carried out similar maneuvers. In mid-1981 one of them -- Kosmos 434 --

burned up over Australia, and the Soviet Foreign Ministry in Moscow tried to allay fears of nuclear contamination by identifying the payload as only “an experimental lunar module”!

Based on an analysis of Soviet statements, it’s possible to reconstruct how they planned to land men on the moon in the early 1970s. The Soviet lunar expedition (which in early 1969 was still competitive with the Soviet’s belief in a mid-1972 Apollo landing) would have involved the launching of the major pieces of lunar hardware atop the giant booster, along with the separate launching of the manned spacecraft atop a more reliable Soyuz-type rocket. The two vehicles would link up in orbit a hundred miles above earth, and then head out for the moon, propelled by an extra stage of the super booster.

Another aspect of Soviet space procedures in 1967-1969 also testifies to the plausibility of this scenario. During the space rendezvous and docking maneuvers carried out five times in those years, the Soviets would launch the active “chase” ship *first* and then the passive target ship a day or two later. Such a sequence made absolutely no sense at all in the light of later applications of orbital rendezvous, in which a manned ship would blast off and link up with an already orbiting space station. And the Soviets did eventually adopt this sequence: starting in 1971, they switched to this passive-first-and-active-second sequence, and have never reverted to the opposite technique they used originally.

Now, consider that original maneuver in light of the assembly of a man-on-the-moon spaceship from two parts, a small manned ship and a larger spacecraft complex launched by a less than totally reliable giant booster. Since the large spacecraft complex would include a fully fueled upper stage needed for the final boost from earth’s orbit out toward the moon, it would not be able to endure a long flight: the propellants could become unstable or could leak away. However, if the manned ship was launched *first*, the large spacecraft complex could follow the next day, after which the linkup could be accomplished on the very first orbit of the unmanned complex. Ignition of the upper stage, and injection onto a moon-bound trajectory, could follow within an hour or two.

Such a scenario is a good justification for the bizarre Soviet space maneuvers in that period -- which are otherwise totally unexplained. And this supposition is compatible with the other information we have assembled from other sources.

For instance, Soviet cosmonauts spent the late 1960s engaged in helicopter training. (Since then, they have eliminated such training.) In the Apollo program, such activities were devoted solely to familiarizing astronauts with the controlled vertical descents and ascents associated with lunar landings. Neither program had any training time to waste, so the Russians were not doing it just for recreational purposes. Astronaut Michael Collins correctly perceived the significance of the Soviet activities when he wrote in 1974: "If the Russians weren't interested in a manned lunar landing, if -- as they subsequently said -- they were not racing us to the Moon, then why were they training cosmonauts to fly helicopters?" That is still an excellent question -- and the best answer is that they were indeed planning on making manned lunar landings.

This hypothetical Soviet man-on-the-moon program remained alive at least through late 1970, as flight tests showed. Perhaps the Soviets would have been encouraged to proceed with manned lunar landings if the Americans had abandoned moon flights (the Soviets doubtlessly were hoping that this would be one result of the early 1970 Apollo-13 failure), particularly if the Soviet expeditions were demonstrably superior to the American ones in terms of stay times or some other highly visible factor. But when it became clear Apollo was going to continue into the 1971-1972 period with even more advanced lunar missions, and that the Soviet giant booster was not going to become available until several years' more effort, the Soviet man-on-the-moon program was terminated.

The Soviets seem to have had another backup plan for upstaging Apollo. Only days before the blast-off of Armstrong, Collins and Aldrin on their moon-landing expedition in July 1969, the Soviets shot Luna-15 into space. The unmanned probe reached the moon and went into orbit around it.

Speculation about its mission was rife: could it be an attempt to return soil samples using only remote-controlled equipment, thus stealing the thunder from Apollo-11? Or could it be an

attempt to interfere with the American landing by jamming radio channels?

When the American astronauts reached the moon, the Russian probe was still circling. Soviet space officials had assured American experts that there would be no interference, and there was none. Instead, Luna-15 maneuvered toward a soft landing on the Mare Crisium -- and crashed. The Soviet failure on the Sea of Crises, and the subsequent American success on the Sea of Tranquillity, seemed almost too metaphorical to be real.

From 1970 to 1976 the Soviets ran an unmanned lunar probe program, with orbital reconnaissance, with robot "scooper ships" (which brought back a few ounces of moon soil) and with remote-controlled "moon buggies," the Lunokhods. They advertised this program as their alternative to manned lunar flights, and boasted about how cheap and safe that approach was.

But even in scientific results alone, the Apollo manned landings showed themselves to be far cheaper in terms of total results than the Soviet robots. A single Apollo expedition collected hundreds of soil and rock samples over a wide area, emplaced long-lived scientific instruments, surveyed the lunar surface from orbit and launched exploratory subsatellites. To carry out an equivalent program would have required a dozen or more robot flights, each costing perhaps a quarter of a manned flight -- with a total cost many times that of the manned flight. And the Soviets continued to run into problems with reliability of their equipment: half of their scooper-sample return probes failed, and the total weight of samples was about a thousand times less than the weight of the Apollo samples. The Lunokhod moon buggies were cute (working models were being sold in Moscow toy stores within a year of the first flight), but they were so expensive in terms of scientific return that they were quietly scrapped in 1972.

It now seems clear that the Soviet unmanned lunar program was only a stopgap measure to show the flag on the moon while the Americans were making Apollo landings. When the Apollo program ended, the Soviet robot lunar program's funding was also cut off. Luna-15 and its successors may even have been thrown together from equipment originally built to support the

abortive man-on-the-moon program. In that light, the Luna-15 flight in mid-1969 may have been a test of a manned moon landing craft; more than a year would follow before the design was refitted for purely robot operations.

Moscow's desire to rewrite old space history -- once it had lost for a time the ability to write new space history -- is completely understandable, since knowledge of the existence of their manned lunar flight programs would have been a glaring advertisement of their inferiority in an arena in which they had long boasted of their inevitable preeminence. Rather than face such propaganda bankruptcy, the Soviets tried to lie their way out of the impasse -- not for the first time, as we have seen, but on a scale far grander than before.

And as usual, they had trouble keeping their cover story straight. According to official Soviet accounts in the 1970s, their manned space program of the 1960s had always been aimed at the establishment of space stations -- manned lunar flight had never been even considered. But in the background profile of one engineer-cosmonaut who visited a space station in 1979, the biographer mentioned offhandedly that the cosmonaut had been working on the space-station project since it had been officially approved -- on January 1, 1969. Since that was only a week after the landing of the U.S. manned around-the-moon Apollo-8 expedition, something else had been on the minds of Soviet space officials in the late 1960s, some other goal which they turned away from only after the success of America's Apollo-8 flight.

The eagerness with which this no-moon-race claim was accepted in the West is remarkable, since those involved were in no way dupes or Soviet sympathizers -- indeed, most of them had had long experience in penetrating other Soviet deceptions. But whether by accident or crafty design, this particular Soviet claim reinforced prevailing prejudices among these disparate Western groups. The left gained support for the oft-expressed complaints about the wastefulness of Apollo expenditures. The right found confirmation of beliefs that the Soviets were too backward to ever dream of competing head-on with American know-how. The scientific community found ammunition for its general condemnation of wasteful astronaut jaunts rather than allegedly more productive unmanned exploration. The net result

was the political neutralization of the implications of the Apollo program and the frustration of the original political motivations for initiating it.

But the race was real, and the Soviets were in it to win. They failed because their technological and management skills were not sufficient to the task. But at least they learned the correct lessons from their defeat. The West, meanwhile, achieved victory, but has been left with the wrong lessons -- and the irony is that we helped write them ourselves.

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